



**US Army Corps  
of Engineers**

Waterways Experiment  
Station

# RECNOOTES

NATURAL  
RESOURCES  
RESEARCH  
PROGRAM

VOL R-90-2

INFORMATION EXCHANGE BULLETIN

SEP 1990



Rehabilitation of campground at West Point Lake

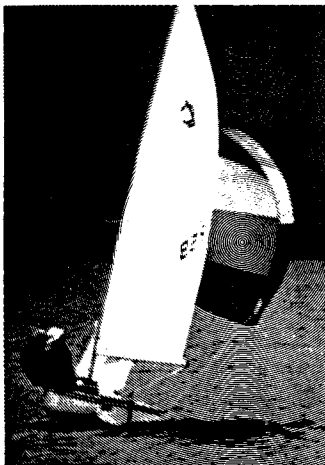
## Regional Recreation Demand Models

*Jim E. Henderson*

*US Army Engineer Waterways Experiment Station*

The objective of the Regional Recreation Demand Model work unit, a part of the Natural Resources Research Program (NRRP), is to improve the Corps' ability to predict changes in recreation use and benefits. To accomplish this, regional recreation models will be developed that show the relationship of demand for recreation to user characteristics of the market populations and to the characteristics of the recreation resources, for example, facilities or natural resources. Regional models quantify the recreation use resulting from changes in existing quality and supply of recreation resources and development of new recreation opportunities, either through new project construction or modification or rehabilitation of existing projects.

Regional recreation demand models will assist in decisions for Planning and Operations of Corps recreation resources. Natural resource management decisions often require information on such items as how visitation will respond to changes in natural resource conditions, such as an extended drawdown, caused either by drought or by change in reservoir water allocation. Without a recreation model showing the demand for recreation opportunities at different water levels, it would be impossible to determine the impact on recreation use and benefits caused by alternative water allocations. The need for this information is especially evident when recreation benefits are being compared to other project benefits, such as navigation.



Recreation models are also used to evaluate the recreation use and benefits from new projects and the changes caused by a new project on use at existing projects in a region. Construction of recreation projects has shifted in recent years to nontraditional recreation projects, away from the reservoir-oriented recreation. Additionally, local, State, and other Federal agencies have constructed, rehabilitated, or closed recreation facilities, affecting the demand for Corps projects.

### **Regional Recreation Demand Models**

The objective of regional recreation demand models is to show how recreation use or demand is related to the demographic characteristics of the user and to the natural resource attributes of the recreation resources or project factors in a region. Demographic characteristics and project factors are determinants of recreation use; that is, these characteristics can be used to evaluate the demand for recreation opportunities. The socioeconomic or demographic character, for example, age, gender, and income, of a recreation market affects the type of recreation opportunities demanded. The natural resources, for example, water body size, and facilities available at different projects in a region produce a range of recreation opportunities available to the recreating public. Additionally, the public is faced with different alternatives or substitute projects or sites for recreating. The regional recreation models show how recreation use is related to, and changes with, the socioeconomic characteristics of the user, the available recreation opportunities, and the availability and costs of recreation substitutes.

### **Corps Regional Recreation Demand Model**

In Fiscal Year 1990 (FY90), the NRRP funded the work unit for development of a Regional Recreation Demand Model.\* The primary work effort in FY90 focused on development of a Plan of Study (POS) for the work unit. A meeting was held in May to provide input for a POS. Participants in the meeting included Operations and Planning representatives from the project, District, Division, and Headquarters, US Army Corps of Engineers. Experts in regional recreation modelling participated in the meeting to explain the state of the art in regional modelling. Recommendations from the meeting were used to develop a draft POS that is currently being reviewed by the field (Henderson in preparation).

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\* In FY 87, a literature review for regional recreation demand models was performed. This literature review has been updated and is awaiting publication.

### **POS Meeting Recommendations**

The meeting participants recommended that a Corps regional model be developed in two phases. The first phase should be development of an Initial Model for operating projects, where there is already an existing data base on visitation for projects. The recreation use records of projects provide the use or demand data that can be statistically related or correlated to the data on user characteristics and project attributes.

Quantitative models are driven by the availability of data. Of primary importance is the origin-destination information on visitors and amount of use by the visitors. Because modelling for proposed or planned projects requires that use be predicted for sites not yet in existence, it will be easier and more expedient to concentrate the first efforts on applications for operating projects where data on recreation use already is available.

Model development for operating projects can be supported by previous work in the NRRP. The standardized Visitor Use Estimation Surveys have been implemented at approximately half of the Corps projects, the Campground Receipt Study (CRS) has collected data on camping trends at sixteen Corps campgrounds nationwide for eight years, and now the Automated Use Permit System (AUPS) collects the same type data as the CRS, but will soon be implemented at most Corps fee campgrounds. These sources provide data on origin of the visitor and amount of use or length of stay for the projects. Information on recreation use from these data sources will be used to develop demand models for the regions.

An example of the use of this type data in regional model development is the Rock Island District model that estimates the benefits associated with the 3 reservoir and 27 Mississippi River recreation sites (O'Keefe 1985). The standardized Use Estimation Surveys had been conducted for the 1983 recreation season. Market areas were determined for each site or reservoir, the market areas containing 90-99 percent of the sample visits. Origin (zip code) data from the surveys were used to develop 10 road-mile zones of use, and used to develop a Travel Cost Model for determining recreation benefits for each reservoir or river site. Data on income, labor force, and population for each zone were used from a data base of zip code demography for 1985, and incorporated in the Travel Cost Model.

Data on project attributes are usually more readily available than visitation data because all projects have an inventory of the managed resources. The Corps Natural Resource Management System (NRMS) has records of all the facilities and resources, for example, water acreage, at Corps projects. Other

agencies maintain similar types of inventories of site attributes.

### **Initial Model Development**

The POS calls for development of an Initial Model beginning in FY91. The Initial Model will be applied to different operations decisions or applications. The Initial Model documentation will set out the steps to formulate questions to be addressed by a model, how to specify data collection, and the analysis required for a model.

Potential applications identified by the POS meeting participants for Initial Model work include fee structures for camping programs and impacts of water level changes, which are discussed in the following paragraphs.

A regional model could be developed to project the impact of alternative fee structures on camping use. Corps managers are continually evaluating the fees charged for camping facilities to ensure that fees are comparable to other sites in the region. While this method provides a general approximation of the fee structures required to remain competitive with other campgrounds in the area, it does not always account for the value associated with the proximity of Corps sites to attractive lakes. In order to improve the accuracy of evaluating alternative fees, managers need information to be able to predict the potential effect of changes in user fees on visitation and revenues. This can be accomplished through the use of demand models that measure the total benefits users derive from a campground. Armed with this information, managers can predict the amount of use to expect under different pricing scenarios.

The impacts on recreation use and benefits, resulting from pool reallocations or drought, are im-

portant in decisions in project operations. Changes in river or pool levels can make some boat ramps or other facilities unusable or reduce the general attractiveness of a project. The relationship of recreation use associated with different water levels can be qualitatively modeled by use of historic visitation and water-level records. Water-level changes can be examined for a single project reallocation or for a system of projects.

The application of the Initial Model will demonstrate how existing data bases are used to develop models of regional recreation preferences and regional recreation demand. The modelling for the test applications will be performed to answer specific decision questions, for example, the effect of differential fee schedules on use and benefits. If other data sets are available for application to other Districts or regions, the Initial Models will be applied to these additional data sets. This will provide a comparison of the model's performance with more than the single region on which the model was developed.

The Initial Model will be documented and data collected for the Test Applications during FY91. The modelling work for the Test Applications will be undertaken during FY92.

### **Second Phase Model Development**

The application of the Initial Models will provide the Corps Districts with experience with data collection and modelling of recreation use for operating projects. This experience will be valuable for the development of models for planned projects. Model development for planned projects requires being able to determine demand for recreation use at a project, based on recreation demand in the region.



**Mudflats and docks and ramp out of the water on Missouri mainstem during drought conditions**

The questions to be answered by a planning model include:

- How much visitation will the new project experience?
- What type of facilities are demanded by the public at the new project?
- With a new project in place, how will visitation change at other projects in the region?

To evaluate these questions for a Planning project, a model of the region is developed to explain the recreation patterns. A model is developed relating the demand for recreation, for example, per capita visitation rates, to the recreation resources, for example, availability of large water bodies, in the region. Determining the impact of a new project then requires using the model and seeing how the recreation use in the region would change with the addition of recreation opportunities in the region.

The POS meeting did not identify specific Planning applications or regions for the second phase modelling work. In looking at the recent and near-future Planning studies, there are a number of small boat harbors, coastal projects, and nonreservoir recreation projects, reflecting the decrease in reservoir construction. There is generally a lack of data on recreation use of coastal projects; most Corps data is on upland navigation or reservoir projects. Development of Planning Models will likely require data col-

lection to develop a data base of coastal project use patterns.

Data collection for Phase II modelling is scheduled to begin in the summer of 1992. This date is prior to completion of the Initial Model work and is intended so that data collection will be completed within the time allocated for the work unit. The modelling work for Phase II will begin in April 1993, and will be completed by the end of the FY (September 1993).

### **User's Manual**

A user's manual for Corps Recreation Models will be developed, combining the documentation for the Initial Model and the Model for Planned Projects. The user's manual will be written to guide development of regional recreation demand models. The manual will include summary documentation of the Initial and Phase II modelling work as examples for District or project personnel who are designing data collection and analysis for regional recreation demand models. The user's manual will be completed by September 1994.

### **References**

Henderson, Jim E. "Plan of Study for the Regional Recreation Demand Model Work Unit," in preparation, US Army Engineer Waterways Experiment Station, Vicksburg, MS.

O'Keefe, M. A. 1985. "The Value of Recreation in the Rock Island District, 1983," Rock Island, IL.

## **Effective Control of Skunks In Campground Garbage Cans**

*Scott Florence  
Mimbres Resource Area  
Bureau of Land Management  
Las Cruces District Office*

Campground Host John Johnson, at the Bureau of Land Management's Aguirre Spring Campground near Las Cruces, New Mexico, recently came up with an innovative way to deal with pesky skunks attracted to garbage cans. The skunks had been crawling up the sides of the cans getting inside to feed on the garbage. Sometimes they would flip the lids off in the process (usually a dead giveaway that a skunk was inside the can). Sometimes, however, the skunks would manage to get inside without removing the lid. This often

came as a surprise to campground users or maintenance personnel emptying cans.

To solve the problem, many alternatives were considered including modification of cans or can holders to prevent entry. Mr. Johnson hit upon the solution of placing mothballs in the bottom of the can before placing the plastic garbage bag inside. The mothballs last several months and have been very effective at keeping the pesky critters away.

# Workshop Held on Improving Operational Management Plans

*John Titre, Michael R. Waring, and Linda Peyman-Dove  
US Army Engineer Waterways Experiment Station*

A two-day workshop on Operational Management Plans (OMPs) was held in Arlington, Texas, in December 1989. The workshop, conducted under the Natural Resources Research Program, was aimed at improving the OMP process. Nearly 40 participants attended, representing Division, District, and Project responsibilities. Staff members from Headquarters, US Army Corps of Engineers (HQUSACE) also participated and delivered presentations.

Mornings were devoted to talks on what has been learned and what might have been done differently in the process of preparing, implementing, or reviewing OMPs. Each afternoon small group sessions discussed specific topics and reported back to the entire group where voting on priority items occurred. The workshop established a dialogue for the exchange of information resulting in a proceedings useful for those involved in OMPs.

The first day focused on project management and District coordination. A definition of an OMP emerged as a "working document for implementing resource management objectives" that is prepared and used by the project. Words such as "realistic," "readable," and "flexible" were often used by project managers to describe their OMPs. The benefits of an OMP seemed to far outweigh the time and effort spent in writing and coordinating. Improvements cited were better communication, establishment of responsibilities and standards, priorities identified, partnership between agencies, and the justification of budget requests. Discussion on writing the OMP reflected the importance of its being a process that emphasizes coordination and communication and not merely a static document or product.

The role of the District in providing support and guidance was especially evident in the Little Rock District where annual presentations are conducted by the project manager before the District Engineer and other staff members. Other Districts find similar opportunities through meetings or appoint steering committees to review objectives, priorities, and five-year plans for the purpose of creating continuity and direction.

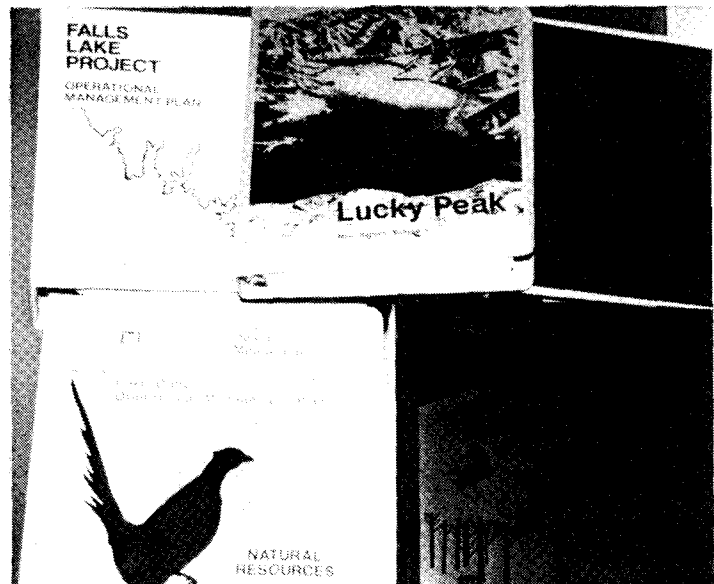
On the second day of the workshop, discussions centered on master planning, geographic information systems (GIS), and final considerations. In examining the relationship of the Master Plan (MP) to the OMP, it was noted that they are part of the same process.

While the MP addresses long-term project goals, the OMP is an action document that finds ways to achieve goals through resource management objectives. Commitment to a logical step-by-step process can be achieved by establishing inter-office teams that address both the MP and the OMP as part of the same job.

The GIS is gaining acceptance as a tool that relies on the same information data base to serve MPs and OMPs. The Walla Walla District has established interdisciplinary teams to foster the coordination of data within a recognized planning process. Lake Oahe has applied GIS technology in the preparation of its OMP.

Final remarks emphasized the need to overcome the myth that OMPs are a paper exercise. A commitment by all levels regarding the value of OMPs as a vehicle for doing a better job with limited resources is necessary. Many of those involved in the process became "believers" only after engaging the gears and traveling down the road toward doing an OMP. The enthusiasm evident at the workshop as managers, specialists, and planners shared ideas is proof of this.

One of the participants mentioned that management is a science and that managing is largely an art. The science part of the OMP can be accommodated by



**Operational Management Plans**

using a standardized format to guide OMP development. The South Atlantic Division has prepared a useful checklist for reviewing components of the OMP. A need also exists to provide "educational" materials as references for those preparing or improving their OMPs. Research instruction reports about how to write and review objectives better is an example of this. Managing as an art was evident in the way OMP presentations reflected risk taking and creativity toward preparing project-specific documents.

Most participants liked the format of the workshop and suggested that similar workshops be conducted nationwide to provide an opportunity for individuals to share information. Future workshops could focus on critical aspects of the OMP contents to make them better. Suggested areas were setting goals and objectives, flow charting, computer applica-

tions, and GIS. Special sessions could accommodate the needs of newcomers to the process as well as veteran specialists and reviewers.

At the workshop's closing, George Tabb of the Natural Resources Management Branch, HQUSACE, thanked all participants for their openness and honesty in exchanging information. He stressed the need to carefully read Engineering Regulation 1130-2-435, "Preparation of Project Master Plans," where there are a number of references to OMPs. Mr. Tabb also observed that OMPs are helping us move from a position of caretaker to one of proactive management. "We want our project managers to be masters of their own fate. We want them to control all aspects of project management, and OMPs are the instrument to get them there," he said.

## **The Year of the Sweet-Smelling Toilet**

The chief complaint forest rangers hear concerns smelly toilets, according to the US Forest Service. Now for the first time, the problem has been solved. After years of research, an engineer at the Forest Service laboratory in San Dimas, California, has figured out why toilets stink and has designed an odor-free model.

Washington administrators are pleased and have declared 1990 as "The Year of the Sweet-Smelling Toilet" and pledged to retrofit 12,000 latrines of Forest Service lands at a cost of up to \$1,500 each. New latrines will also incorporate the new findings. Officials predict that within three years, Americans will not find a smelly toilet in any of their 134 national forests.

Briar Cook, who has conducted research at the San Dimas Technology and Development Center for the past 17 years, has worked on many different projects

including picnic tables and drinking fountains, but said toilets have been his life's work.

Past Forest Service efforts to control the smell problem included chemicals, waste-eating organisms, flushable models, and various ventilation techniques.

Last year, however, Cook made a discovery. He was examining a toilet in a national forest in Florida when he found that cobwebs had clogged the compartment's vent stack, preventing air -- and thus odors -- from escaping. Other toilet stacks in other forests had a similar problem.

Cook discovered that the toilet's basic design prevented effective ventilation. He performed tests in an experimental wind tunnel and determined that a wider vent stack stretching much higher above the roof line vastly improved the expulsion of odors. He also found that solar-powered fans help further to pull the smells from the chamber.

Information from Los Angeles Times.

**Donna Jones**  
**J. Percy Priest Lake**  
**Nashville District**

campers with site information, and assists rangers in collecting fees.

The Site Availability Board is constructed of a solid plastic board 18 by 4-1/2 by 5/8 inch. The board has grooved sides, which allows an aluminum slide to be moved up and down to display either the "Vacant" or "In Use" messages. The messages are printed on reflective, engineer-grade Scotchlite material; green for "Vacant" and red for "In Use." The lock is an allen set screw that is simple in design and easy to use. When attached to a treated 6- by 6-inch site post, the Site Availability Board makes an attractive campsite identification system.

J. PERCY PRIEST LAKE  
NASHVILLE DISTRICT, C.O.E.



***This issue's lead article discusses regional recreation demand models. Such models will assist the Corps in predicting the effect of changes, such as development of new projects or a drought, on the use of recreational facilities. Also in this issue, a report on a successful two-day conference on Operational Management Plans, and news on skunk control, sweet-smelling toilets, a new idea from the Nashville District--the site availability board--and information on career development within the Natural Resources Management Program.***



## NATURAL RESOURCES RESEARCH PROGRAM

This bulletin is published in accordance with AR 25-30. It has been prepared and distributed as one of the information dissemination functions of the Environmental Laboratory of the Waterways Experiment Station. It is primarily intended to be a forum whereby information pertaining to and resulting from the Corps of Engineers' nationwide Natural Resources Research Program can be rapidly and widely disseminated to Headquarters, and Division, District, and project offices as well as to other Federal agencies concerned with outdoor recreation. Local reproduction is authorized to satisfy additional requirements. Contributions of notes, news, reviews, or any other types of information are solicited from all sources and will be considered for publication so long as they are relevant to the theme of the Natural Resources Research Program, i.e., to improve the effectiveness and efficiency of the Corps in managing the natural resources while providing recreation opportunities at its water resources development projects. This bulletin will be issued on an irregular basis as dictated by the quantity and importance of information to be disseminated. The contents of this bulletin are not to be used for advertising, publication, or promotional purposes. Citation of trade names does not constitute an official endorsement or approval of the use of such commercial products. Communications are welcomed and should be addressed to the Environmental Laboratory, ATTN: J. L. Decell, U.S. Army Engineer Waterways Experiment Station, (CEWES-EP-L), 3909 Halls Ferry Road, Vicksburg, MS 39180-6199, or call AC (601) 634-3494.

LARRY B. FULTON  
Colonel, Corps of Engineers  
Commander and Director

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# **HQUSACE Natural Resources Management Perspective**

## **Career Development Within the Natural Resources Management Program**

In July 1989, I appointed a steering committee to establish a career development program for all permanent Corps employees within the Natural Resources Management (NRM) Program. A major function of the committee is to identify the concerns and needs of field personnel in the key areas of training and career development and to generate recommendations for consideration and action by my office.

The goal is to produce an overall NRM Career Development Plan for Natural Resources Personnel. This plan will redefine training needs and will depict specific training requirements, cross functional appointments, and developmental assignments designed to enhance career development within the NRM program.

The committee is actively pursuing a number of assignments aimed at meeting this goal. One in particular is involvement with the Army's ACTEDS program which I view as imperative to the success of our Career Development Program. The following is an article on the ACTEDS program submitted by Susan Whittington who serves as the NRM ACTEDS point-of-contact for the Career Development Committee.

### **ACTEDS**

Some of you have probably heard the term "ACTEDS" by now but are not sure what it means. Most of you probably have not even heard the term and may not care what it means. However, ACTEDS is extremely important because it provides a "road map" for career development plans for those who aspire to key positions within the Engineers and Scientists Career Program. Read on to learn more about how ACTEDS can be used in determining your career development plan. . .

**WHAT IS ACTEDS?** ACTEDS is an acronym for the Army Civilian Training, Education and Development System.

**HOW DID ACTEDS COME ABOUT?** ACTEDS is a Department of the Army initiative to align civilian career development with the military system.

**WHAT IS INCLUDED IN ACTEDS?** The current draft document includes a narrative with guidance for implementing ACTEDS, a table listing competitive training courses, career ladder diagrams, KSAs (knowledge, skills and abilities), functional area career development plans (which include formal classroom training, on-the-job experience, and developmental assignments), and master training plans. One key feature of the plan is a "core curriculum" or a list of mandatory and recommended training courses that are common to all functional areas within the Corps.

**DOES ACTEDS IMPACT ME?** Technically speaking, ACTEDS will not impact you unless you aspire to key positions such as Chief or Assistant Chief of the six major functions--Civil Works Planning, Engineering, Construction, Operations, Facilities Engineering, Research and Development, and Deputy District Engineer for Project Management. The plan pertains to civilians eligible for coverage under the Engineers & Scientists (Resources & Construction)

Career Program and provides the structure for assuring that high potential civilians receive the training and development necessary to fill key positions. Realistically speaking, employees begin to make career development decisions beginning as low as the GS-05 level. To reach the key positions targeted by ACTEDS, employees must make career development decisions at the GS-11 and -12 levels. Although your goal today may not be to become the Chief or Assistant Chief of Operations, your goal ten years from now could very well include this aspiration. If you do not follow the ACTEDS "road map," you could find that you are not qualified or not as highly qualified for these key positions.

**IS ACTEDS REQUIRED?** The recommended career ladders are not the only way to reach a key position but they are the most likely way. Employees whose careers have not followed the progression outlined in the ladders but who believe that their job-related experiences have qualified them for referral to key positions will have an opportunity to provide their explanation with their career appraisal submission. The HQDA Screening Panel will determine whether the training and experience is considered equivalent.

**WHAT IS THE CURRENT STATUS OF ACTEDS?** ACTEDS plans are distributed through the Training Resource Automated Information Network (TRAIN) which is an automated service provided by HQDA. All Human Resources (or Personnel) Offices have access to the TRAIN system. Future plans are to publish ACTEDS as a DA pamphlet. Since only a limited number of DA pamphlets are published, primary access to ACTEDS will be through TRAIN.

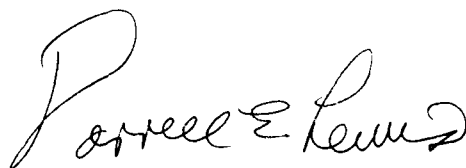
**WHEN WILL ACTEDS BECOME EFFECTIVE?** At the second Annual Screening Panel after publication of this career development guidance, these or "equivalent" experiences will become rating criteria for the DA Screening Panel recommending and assigning referral ratings for key positions.

**WHO IS RESPONSIBLE FOR IMPLEMENTING ACTEDS?** As in most career management functions, implementing ACTEDS will be a joint effort between career program managers, supervisors, careerists, and the Human Resources (or Personnel) Office.

**HOW WILL ACTEDS BE FUNDED?** HQDA will fund some of the competitive training courses and DA-sponsored courses and programs. All other training will be resourced as it is now. However, training identified within ACTEDS plans will receive a higher priority. These priorities are likely to affect local competition for training dollars.

**WHERE MAY I OBTAIN MORE INFORMATION?** If your office does not have a copy of the ACTEDS plan, you may obtain more information by contacting your district or division Career Program Manager.

*Susan Whittington serves as the ACTEDS point-of-contact for the NRMCDC. You may contact her at FTS 841-6807 (or area code 404-331-6807) concerning Natural Resources Management questions related to the ACTEDS.*



DARRELL E. LEWIS  
Chief, Natural Resources  
Management Branch, HQUSACE